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PROCEEDINGS

OF

THE ROYAL SOCIETY.

1839.

No. 38.

April 11, 1839.

The MARQUIS of NORTHAMPTON, President, in the Chair.

Lieutenant H. Alexander Ormsby, I. N., was balloted for, and duly elected into the Society.

A paper was read, entitled, "On a new equi-atomic compound of Bicyanide with Bin oxide of Mercury." By James F. W. Johnston, Esq., F.R.S.

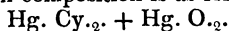
In this paper an account is given of the properties of a salt, obtained by agitating with red oxide of mercury a small proportion of hydrocyanic acid, and which the author finds to be distinguished from the bicyanide of mercury by its sparing solubility in cold water, by the strong alkaline reaction exhibited by its solution, (a property which indicates an excess of mercury,) and by its susceptibility of detonation by heat, depending on this excess being in the state of an oxide, and on the action of the oxygen on a portion of the carbon of the cyanogen it contains, and the presence of which is shown by the disengagement of hydrocyanic acid gas when acted on by hydrosulphuric and hydrochloric acids.

The analysis of this salt, given by the author, shows it to consist of

Carbon.....	5·203
Nitrogen	6·025
Oxygen	3·098
Mercury	85·674

100.

The formula of which composition is as follows :



April 18, 1839.

JOHN WILLIAM LUBBOCK, Esq., V.P. and Treas.,
in the Chair.

John Thomas Graves, Esq., M.A., and the Rev. Samuel Roffey Maitland, were balloted for, and duly elected into the Society.

The ballot for James Joseph Sylvester, Esq., was postponed in consequence of the number of Fellows required by the charter not being present.

The following papers were read, viz.—

“On the Constitution of the Resins.” *Part I.* By James F. W. Johnston, Esq., F.R.S.

The object of the general investigation, of which the commencement is given in this paper, is to determine the relative composition of the various resins which occur in nature, and to trace the analogies they exhibit in their constitution; and also to ascertain how far they may be regarded as being derived from one common principle, and whether they admit of being all represented by one or more general formulæ.

The chemical investigation of the resin of mastic shows that this substance consists of two resins; the one soluble, and acid; the other insoluble, and having no acid properties. The formulæ expressing the analysis of each of these are given by the author. He also shows that a series of analyses may be obtained which do not indicate the true constitution of a resin. The soluble resin, when exposed to the prolonged action of a heat exceeding 300° Fahr. is partly converted into a resin containing three, and partly into one containing five equivalent parts of oxygen, the proportion of carbon remaining constant. The same resin combines with bases, so as to form four series of salts; which, in the case of oxide of lead, consist of equivalents of resin and of oxide in the proportions, respectively, of two to one; three to two; one to one; and one to two. This soluble resin in combining with bases does not part with any of its oxygen; but if any change takes place in its constitution, it consists in the hydrogen being replaced by an equivalent proportion of a metal; and formulæ are given representing the salts of lead on this theoretical view. By boiling the resin in contact with ammonia and nitrate of silver, or perhaps with nitrate of ammonia, it is converted into a resin which forms a bisalt with oxide of silver, in which there is also an apparent replacement of hydrogen by silver.

The resin next examined is that of dragon's blood: and the conclusions deduced from its analysis are the following. First, that the lump dragon's blood is the natural and pure resin, while the strained and red varieties, being manufactured articles, are more or less decomposed: secondly, that this resin retains alcohol and ether, as most other resins do, with considerable tenacity; but that these solvents may be entirely expelled by a long-continued exposure to a temperature not higher than 200° Fahr.: and lastly, the formulæ representing its chemical composition is given.

“Researches in Embryology.” — *Second Series.* By Martin Barry, M.D., F.R.S.E., Fellow of the Royal College of Physicians in Edinburgh. Communicated by P. M. Roget, M.D. Sec. R.S.

The author having, in the first series of these researches, investigated the formation of the mammiferous ovum, describes in this second series its incipient development. The knowledge at present